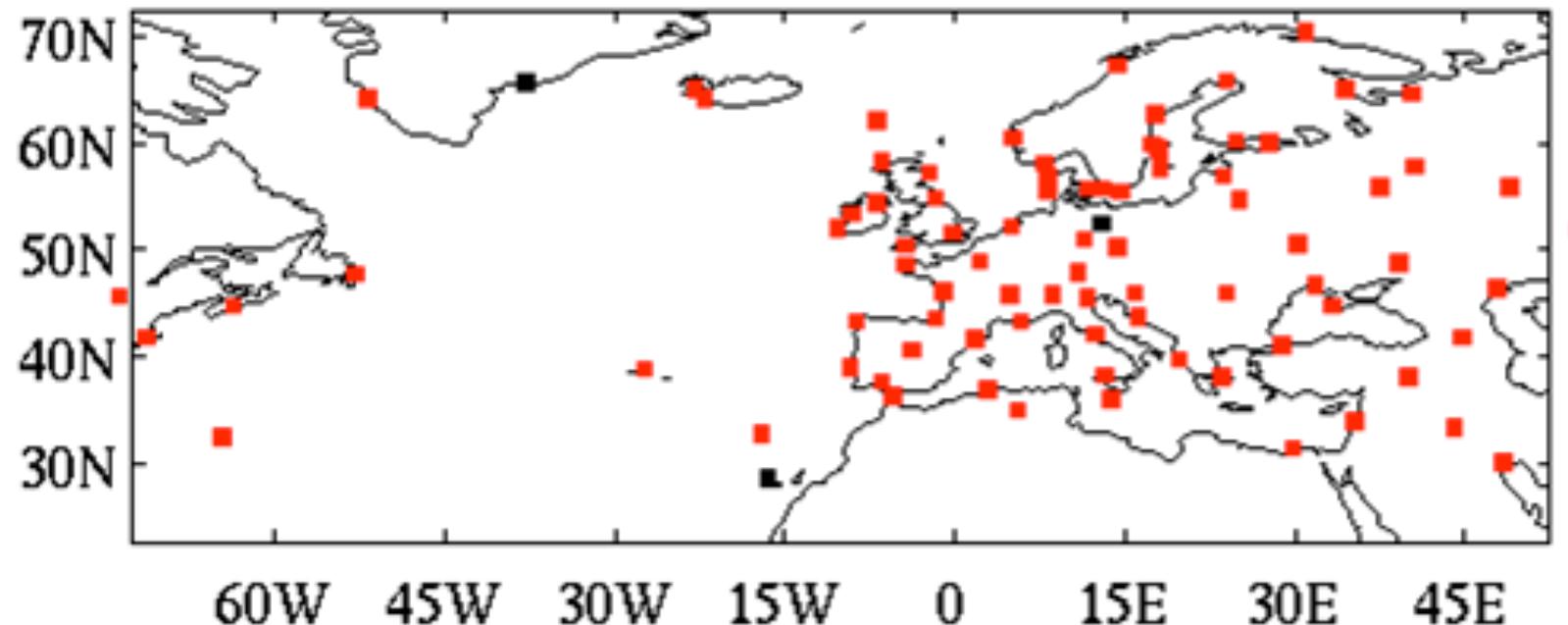


Gridded historical MSLP products: existing and future plans

Tara Ansell
Hadley Centre, Met Office, UK

WMO AOPC /OOPC Surface Pressure Working Group
Met Office, Exeter, October 2005

New MSLP gridded products : EMSLP



EMSLP :

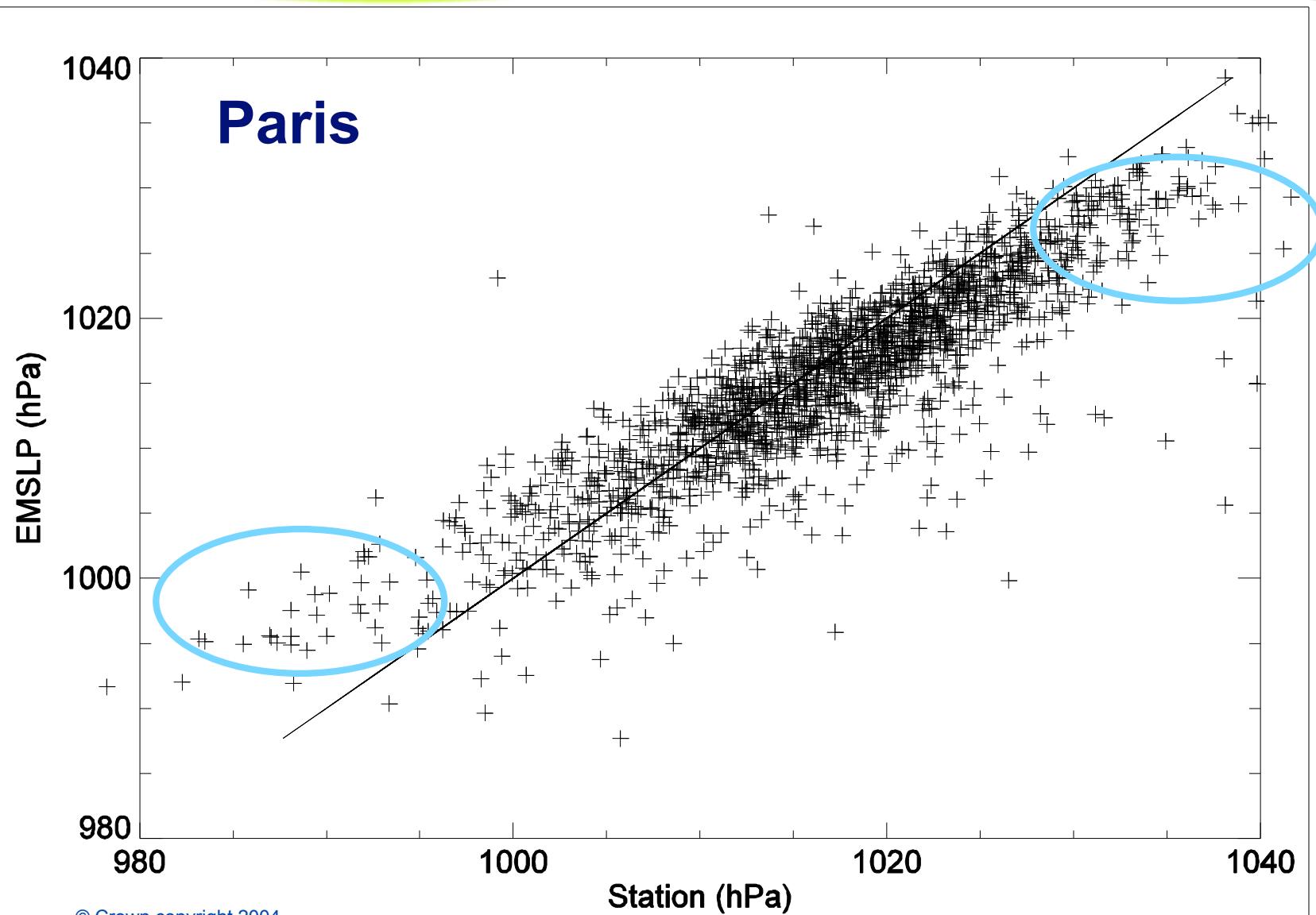
- North Atlantic – Europe **daily** product
- Blend of **86** stations + marine obs from **1850-2003**
- 5x5 degree resolution
- available from www.cru.uea.ac.uk/cru/projects/emulate and www.hadobs.org
- see Ansell et al, J. Climate (accepted)

EMSLP problems:



- Smoothing /damping
 - marine gridding system (effects number of observations)
 - RSOI
- Greenland
- Variance problems
 - RSOI
- Correction to 24 hour
 - Daily rather than synoptic fields

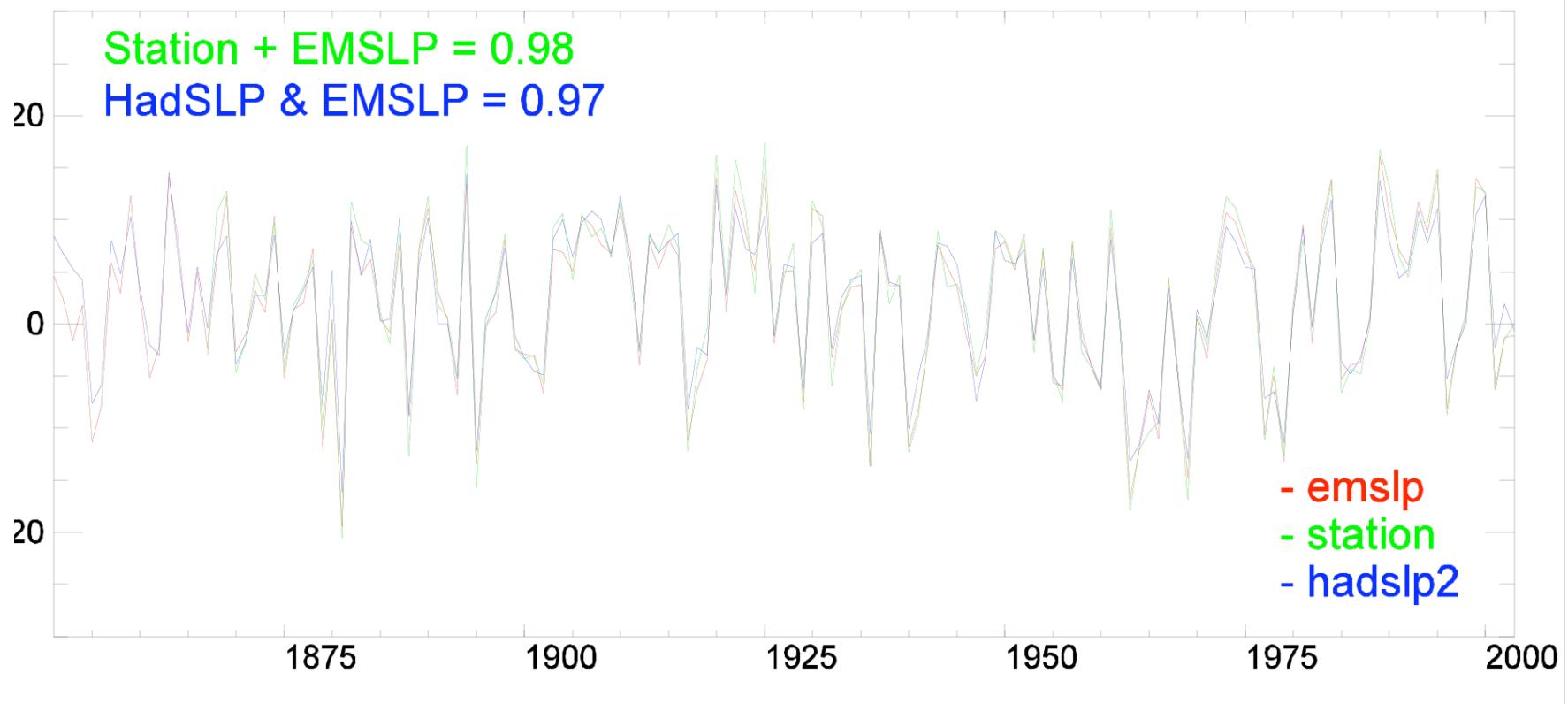
Grid pt vs. station data (daily data)



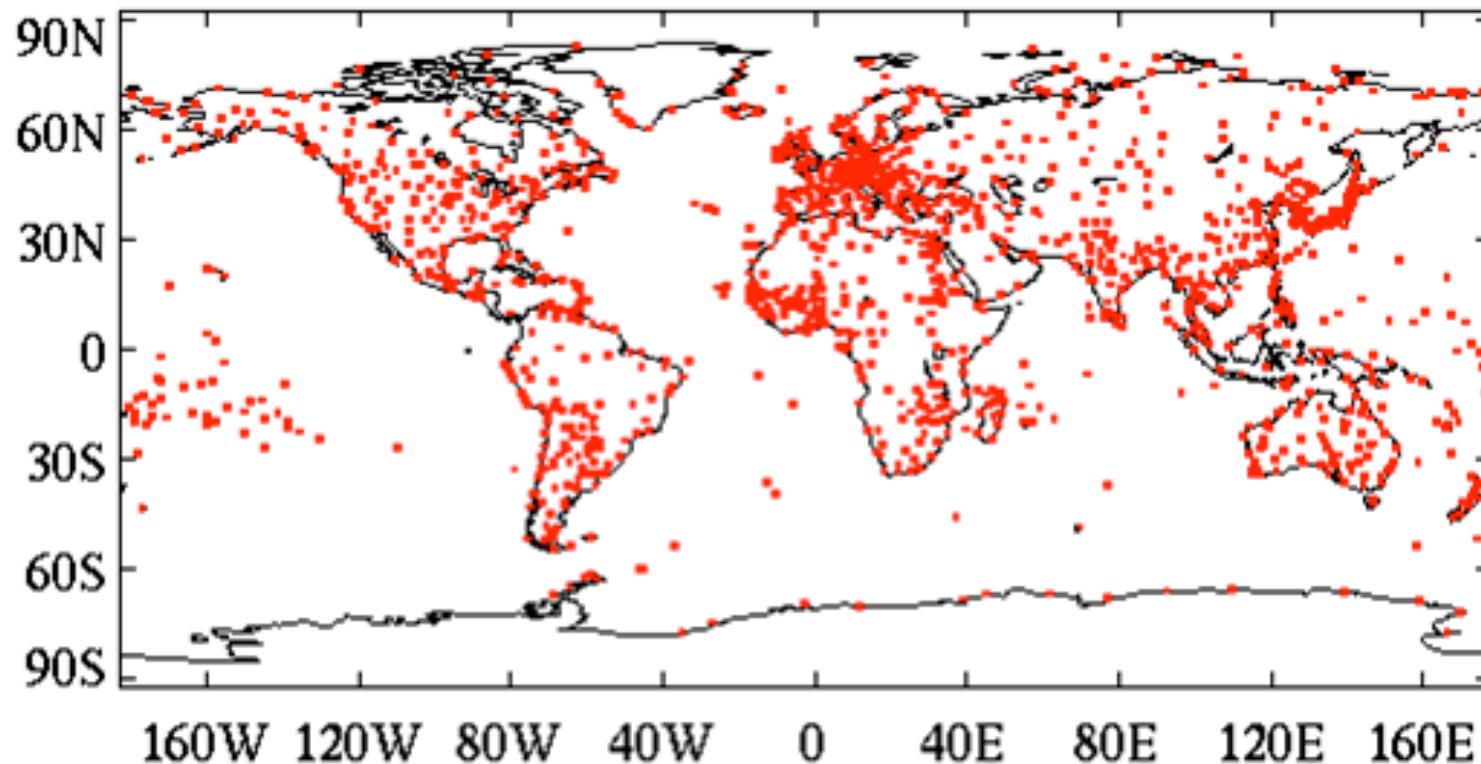
Grid point vs Station data (monthly analysis)



NAO



New MSLP gridded products : HadSLP2



HadSLP2:

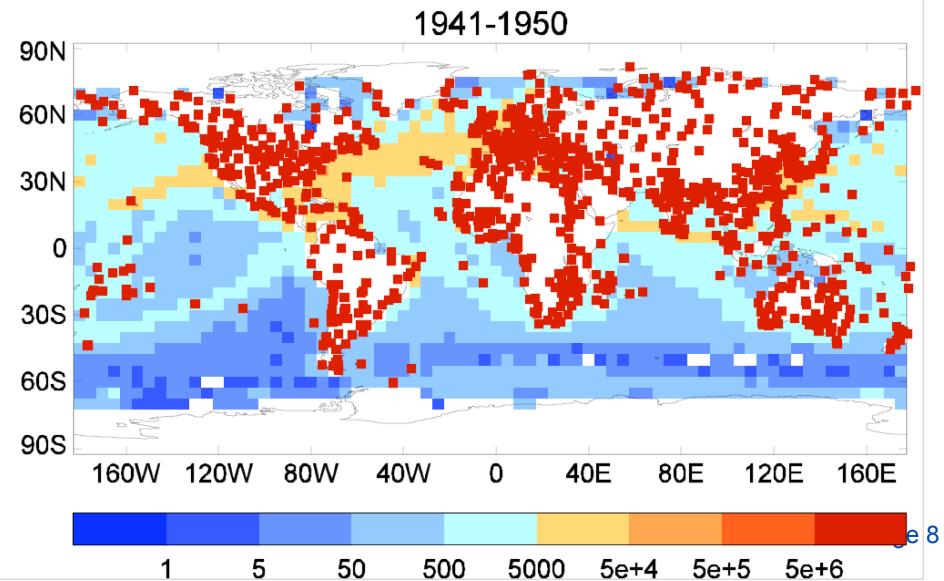
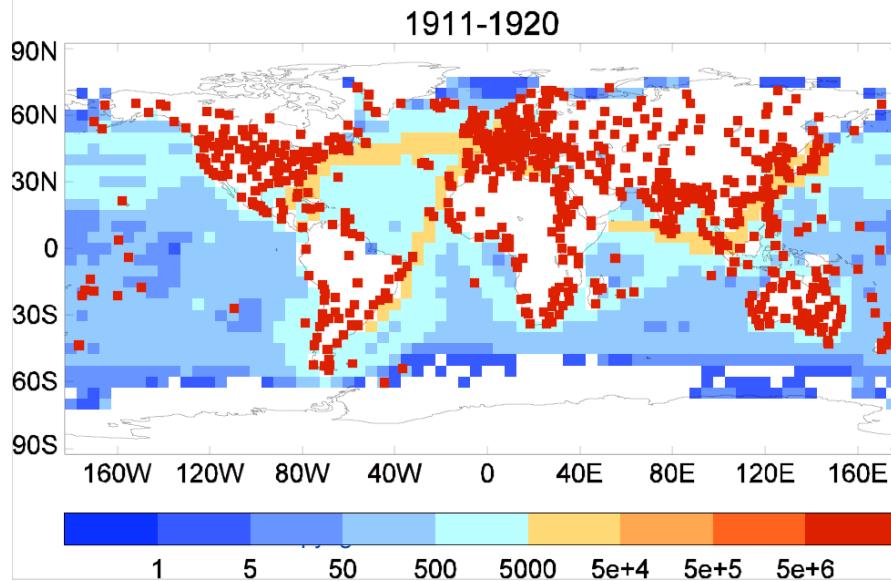
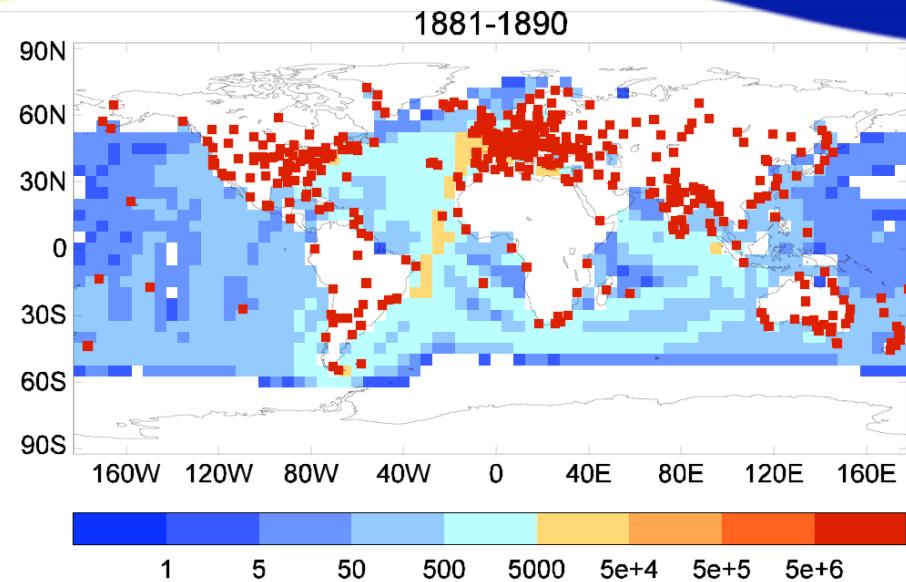
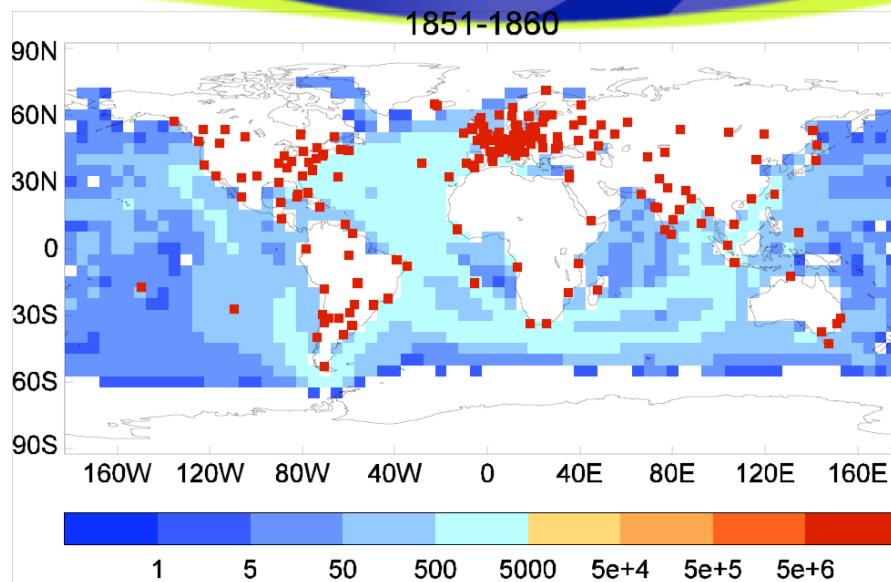
- Global, **monthly** product (update of HadSLP1)
- Blend of **1502** stations + marine obs from **1850-2004**
- 5x5 degree resolution
- updated** in near real time with NCEP/NCAR reanalyses
- See **Allan and Ansell, J. Climate (submitted)**

HadSLP problems:

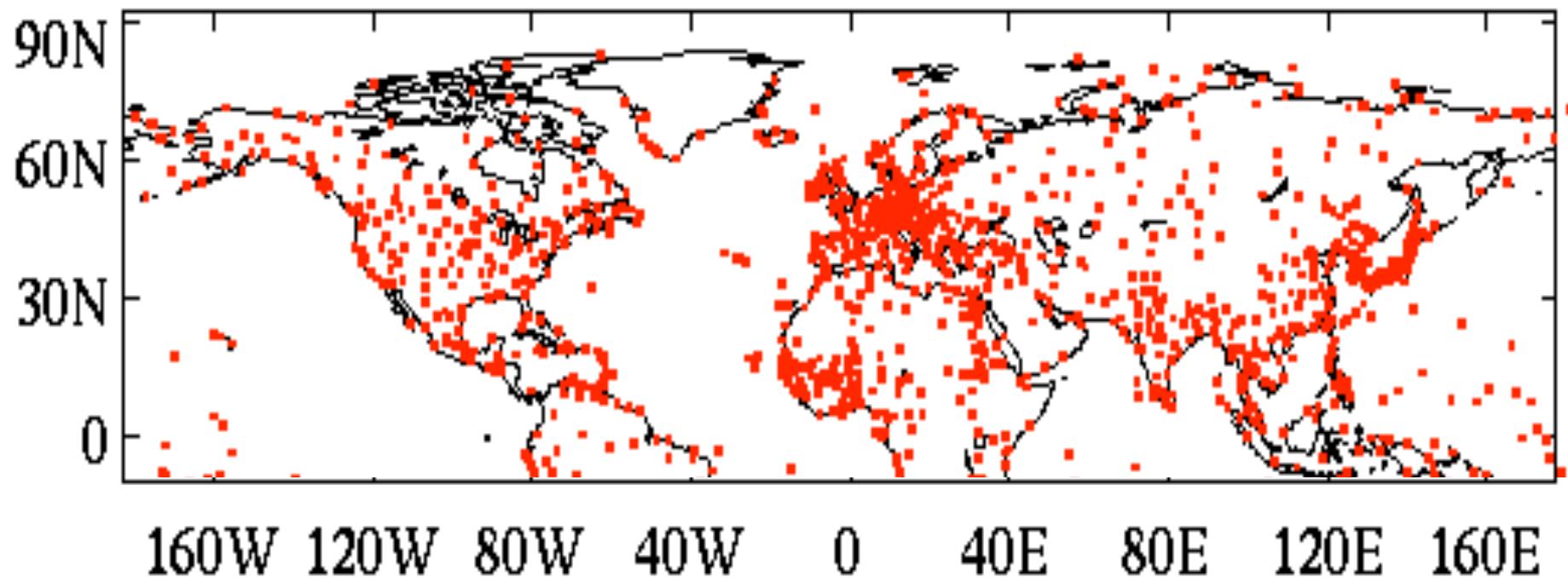


- Southern Hemisphere mid-latitudes
- Interpolate or not south of 60°S?
 - Required by the user??
- Things to work on:
 - Error estimates
 - EOFs (Use of NCEP data + obs)

HadSLP2p coverage



Northern Hemisphere daily product



- Potential to achieve similar coverage with daily data

Digitised European sources to include



- Swiss daily data (not included in EMSLP)
 - Requires homogenisation
- UK 3-hourly MSLP observations
 - Work in progress (L. Alexander)
- Paris / London?
 - Extend beyond 1881

Dataset index for Northern Hemisphere historical daily MSLP compilation – CDC 100 year Historical Reanalysis

Name	Description	Period of Record
ICOADS	Global Marine	1784-2002
ICOADS add ons	Kobe, Japanese Whaling, Russian RV	1889-1940, 1946-1984, 1937-1991
Integrated Surface Hourly	Global Land	1901-2005
CDMP WBAN 1001	US Land	1892-1948
CDMP SAO	US Land	1928-1948
Russian Empire	Russian Land	1849-2000
NCEP/NCAR BUFR	Global UA and Surface	1948-2005
USSR	Russian Land (3 hourly)	1935-1986
WASA	Northern Europe + Greenland	1871-1996
EMULATE	North Atlantic-Europe	1850-2004
Environment Canada	Canadian Land	1842-2005
Hong Kong	Hong Kong Observatory	1885-1939
Batavia/Jakarta	Royal Dutch Observatory	1866-1944

Known and/or potential daily MSLP data sources to be tapped – inside and outside of Europe (I)

China (Beijing, Shanghai, Hong Kong, Macao) – Nicolas Central Physical Observatory 1850-1912; Hong Kong Government Gazette 1861-1941; Shanghai, Inspectorate General of Customs, 1877-1905; China Coast Meteorological Register 1885-1912; Direccao dos Servicos Meteorologicos e Geofisicos, 1901-2000

Caribbean – Caribbean Meteorological Institute, ????

Greenland - Danish Meteorological Institute, 1870s->

Middle East, Egypt, Sudan, Mediterranean (eg. Cairo, Alexandria, Beirut, Khartoum, Malta, Trieste, Brindisi, Athens, Limassol) – Abbassia Observatory, 1900-1947; Survey Department, Cairo, 1907-1957; Zentralanstalt fur Meteorologie und Geodynamik, Year Books, 1854-1984

Known and/or potential daily MSLP data sources to be tapped – inside and outside of Europe (II)

French Colonial (North Africa, Caribbean, Middle East, SE Asia) - Bureau Central Meteorologique, Bulletin International, 1869-1881; Bureau Central Meteorologique, Annales, 1880-1913

Portuguese Colonial (North Atlantic Islands, Guinea, Goa) - Servico Meteorologico Nacional, Anais meteorologicas das colonias, 1915-1951

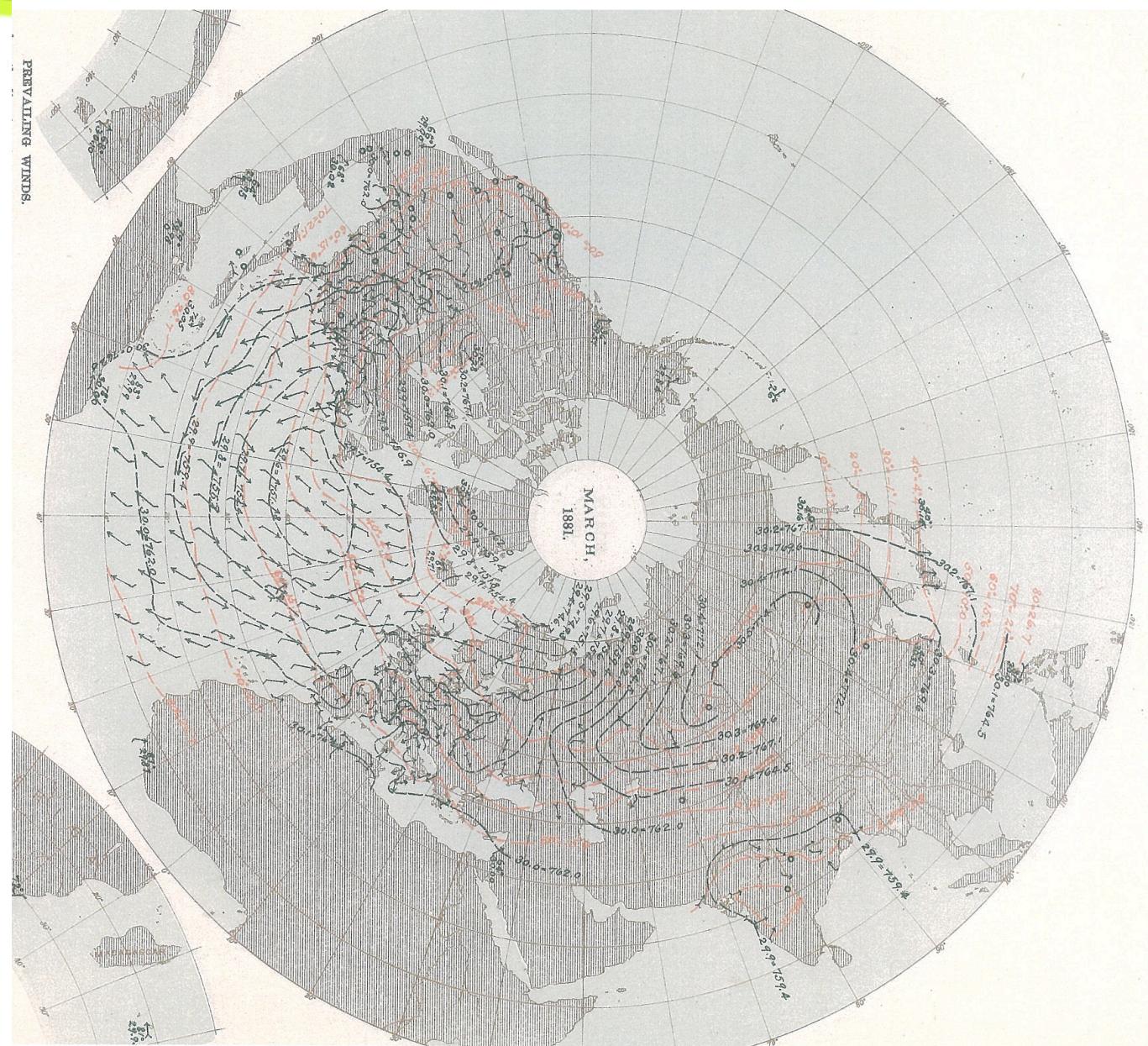
German Colonial (Labrador, North Africa, Iraq, Iran, Korea) - Deutsche Seewarte, Deutsche Ueberseeische Meteorologische Beobachtungen, 1883-1914

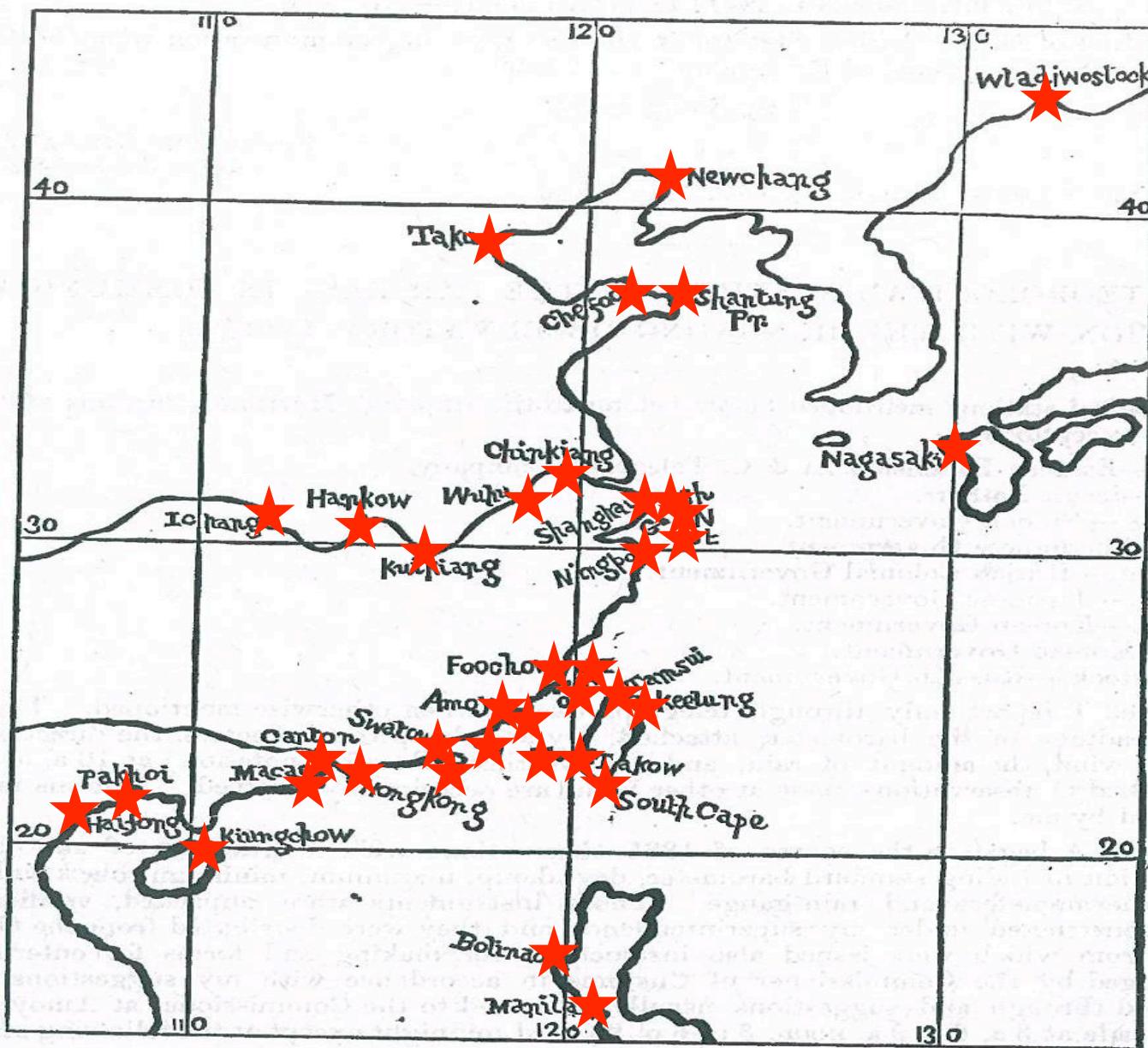
Northern Hemisphere - Washington, Signal Office, 1875-1883

Bermuda – Bermuda Weather Service, 1981-2000

DWR (Daily Weather Reports) – UK, French, Spanish, Algerian, Italian, Austro-Hungarian, Russian

NH MSLP for March 1881 - International simultaneous meteorological observations, Washington, Signal Office





Meteorological Stations reporting to Hong Kong Observatory 1885